REMARKS

This amendment responds to the office action mailed August 28, 2002. In the office action the Examiner:

- canceled claims 1-27.
- rejected claims 31, 32, 34-40, 43, 45 and 47-49 under 35 U.S.C. 102(e) as anticipated by Yamada (U.S. Patent No. 5,959,760). We will treat the 35 U.S.C. 102(e) rejection as a 35 U.S.C. 103 rejection as well, and respond accordingly.
- rejected claims 33, 41, 42, 44 and 46 under 35 U.S.C. 103(a) as being unpatentable over the teachings of Yamada.
- canceled claims 1-27.

After entry of this amendment, the pending claims are: claims 31-72.

Cancellation of Claims

Regarding the Examiner's cancellation of claims 1-27, the Applicants confirm that we intended, but inadvertently failed, to specifically request that rejected claims 1-12 and 21-23 be canceled in our response to the previous office action. We request that claims 1-12 and 21-23 be canceled without prejudice, along with claim 45. The Applicants hereby reserve the right to reinstate the canceled claims by subsequent amendment in accordance with 37 CFR 1.121(c)(2).

As to claims 13-20 and 24-27, these claims were not rejected, but rather were nonelected species under a restriction requirement. We ask that these claims not be cancelled, but rather that they remain withdrawn from further examination as non-elected species until a conclusion is reached as to the allowability of the generic claims from which those claims depend.

Request for Reinstatement of Nonelected Claims and Species under 37 CFR 1.141/1.146 and MPEP 809.02/821.02

While the Applicants made a restriction election under 37 CFR 1.142 and a species election under 37 CFR 1.146, the Applicants nevertheless retain the right to request reinstatement of non-elected claims and a reasonable number of species that depend from generic claims that have been allowed. See MPEP 821.02:

> ... However, where the application contains an allowed generic claim, and applicant has not been previously notified as to the allowance of a generic claim, the examiner must, prior to canceling the nonelected claims, notify applicant of the allowance of a generic claim and give applicant a time limit of 1-month (not less than 30 days) to conform all of the claims to the nonelected species to fully embrace an allowed generic claim. See MPEP § 809.02(c).

Further, MPEP 809.02(c)(B) states:

> When a generic claim is subsequently found to be allowable, and not more than a reasonable number of additional species are claimed, treatment shall be as follows:
>
> (1) When *all* claims to each of the additional species are embraced by an allowable generic claim as provided by 37 CFR 1.141, applicant must be advised of the allowable generic claim and that claims drawn to the nonelected species are no longer withdrawn since they are fully embraced by the allowed generic claim.

If claims 31 and 52 are allowed, the Applicants request that the Examiner provide an opportunity to resubmit non-elected claims 13-20 and 24-27 for examination and allowance.

Response to Rejection of Claims

The amendment to independent claim 31 is supported at least by: Figures 1 (Nos. 26 and 34), 2 (Nos. 26 and 34), and 3 (No. 34). No new matter has been added to this claim.

As amended, independent claim 31 recites in pertinent part: "a moving combteeth assembly, including a mirror and one or more elongated combteeth spines coupled to and extending away from sides of the mirror, the one or more combteeth spines each having second combteeth extending therefrom for engaging the first combteeth." This is not taught or suggested by Yamada, and Yamada provides no motivation or suggestion to so modify its disclosed apparatus. Yamada teaches "opposing end portions", "opposing areas" and "electrode sections of the mirror" (See e.g. Yamada, column 7, lines 43-63, and Figures 7A). Figure 7A shows these "end portions" as being part of the mirror with a comb shape extending directly from the mirror. There is no elongated spine extending away from the sides of the mirror.

Respectfully, Yamada does not teach the invention to which independent claim 31 is directed, nor claims 32-49 that depend from claim 31.

As to dependent claims 32 and 49, the amendment to each is a typographical correction and adds no new matter.

Additionally as to dependent claim 32, the first Office Action (dated February 1, 2002, and referenced in the present Office Action) stated that Yamada anticipated claim 32 by using a "moving combteeth assembly positioned above the stationary assembly." Applicants respectfully disagree, as Yamada does not teach or suggest this configuration or positioning, nor does it provide a motivation or suggestion to so modify its disclosed apparatus. Claim 32 states in pertinent part: "the moving combteeth assembly is positioned entirely above the stationary combteeth assembly by a predetermined vertical displacement during a combdrive resting state." Yamada teaches a mirror with an electrode end portion that is *within* a stationary assembly. The fixed electrodes (e.g. Figure 7A (7a,7b)) of Yamada are only part of the larger stationary assembly. Yamada's stationary assembly in figure

7A includes these fixed electrodes plus a supporting substrate(1) and an insulating film(6). All of the figures of Yamada show the mirror and its electrode end portions as being *under or within* this larger stationary assembly - not "entirely above." Respectfully, Yamada does not teach the invention to which dependent claim 32 is directed.

New dependent claim 50 is supported at least by: Figures 1-3. No new matter has been added.

New dependent claim 50 states: "the combteeth spines are elongated structures and the second combteeth extend perpendicularly away from the combteeth spines." This is not taught or suggested by Yamada, and no motivation is provided in Yamada to so modify the apparatus described therein. Similar to what is stated above regarding amended claim 31, Yamada teaches "opposing end portions", "opposing areas" and "electrode sections of the mirror" (See e.g. Yamada, column 7, lines 43-63, and Figure 7A) - not elongated structures or combteeth extending perpendicularly from such combteeth spines. As seen in Yamada's Figure 7A, the comb shaped "end portions" of the mirror and the comb shaped ends of the fixed electrodes extend directly from the mirror and the larger fixed electrodes, respectively. Yamada does not show an elongated structure separate from the mirror or the fixed electrode. Additionally, since such elongated structures do not exist in Yamada, there can be no combteeth extending perpendicularly away from such structure.

New claim 53 depending from new independent claim 52 contains the same language as claim 50, and so the above arguments apply equally for claim 53.

New dependent claims 51 is supported at least by: page 5, lines 16-19. No new matter has been added.

New dependent claim 51 states: "the torsional electrostatic combdrive is configured to maintain the mirror

at a static position." Such static positioning is not taught or suggested by Yamada, and no motivation is provided to so modify the apparatus disclosed in Yamada to operate in such a static configuration. Yamada teaches a mirror whose only disclosed mode of operation involves constant movement. Figures 3-6 of Yamada show the resonant scanning configuration for Yamada's apparatus. Resonant scanning and rotatably vibrating a mirror are not the same as maintaining the mirror in a static position.

New claim 55 depending from new independent claim 52 contains the same language as claim 51, and so the above arguments apply equally for claim 55.

New independent claim 52 is supported at least by: figures 1-3. New claims 53 and 55 depending from new independent claim 52 contain the same language as claims 50 and 51, respectively, and so the support stated above for claims 50 and 51 applies equally here. New claim 54 is supported at least by figures 1-3. New claims 56-72 which depend from independent claim 52 are supported at least by: figures 1-3; page 3, line 30 through page 5, line 10; and canceled claims 1-12 and 21-23. No new matter has been added to any of these claims.

New independent claim 52 recites in pertinent part: "a moving combteeth assembly, including a mirror and a pair of combteeth spines coupled to and extending in opposite directions away from sides of the mirror, the combteeth spines each having second combteeth extending therefrom for engaging the first combteeth." This is not taught or suggested by Yamada, and Yamada provides no motivation or suggestion to so modify its disclosed apparatus. As a relevant example of Yamada's apparatus, Figure 7A shows "end portions" as being part of the mirror with comb shaped end portions extending directly from the mirror. Yamada does not show combteeth spines, and more specifically it does not show a pair of

combteeth spines extending in opposite directions from the sides of the mirror, with combteeth extending from the spines.

Respectfully, Yamada does not teach the invention to which independent claim 52 is directed, nor claims 53-72 that depend from claim 52.

New dependent claim 54 states: "the first combteeth extending from a first combteeth spine of the pair of combteeth spines and the second combteeth extending from a second combteeth spine of the pair of combteeth spines extend from the combteeth spines in a same direction." Building on the above remarks regarding claim 52, as Yamada does not teach or suggest combteeth spines extending in opposite directions from the sides of mirror, it cannot teach combteeth extending from such nonexistent spines in any direction. In fact, Yamada's figure 7A and accompanying text show the comb shaped end portions of its mirror as extending in *opposite* directions directly from the mirror itself. So, not only does Yamada not teach spines, Yamada does not teach combteeth extending in the same direction from such spines.

In light of the above amendments and remarks, the Applicant respectfully requests that the Examiner reconsider this application with a view towards allowance. The Examiner is invited to call the undersigned attorney if a telephone call could help resolve any remaining items.

Respectfully submitted,
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Appendix A

Changes to the Claims

The rewritten claims were revised as follows:

31. (Amended) A torsional electrostatic combdrive, comprising:

a stationary combteeth assembly having first combteeth; and

a moving combteeth assembly, including a mirror and one or more elongated combteeth spines coupled to and extending away from sides of the mirror, the one or more combteeth spines each having second combteeth extending therefrom for engaging the first combteeth.

32. (Amended) The torsional electrostatic combdrive of claim 31 wherein the moving combteeth assembly is positioned entirely above the stationary combteeth assembly by a predetermined vertical displacement during a combdrive resting state.

33. The torsional electrostatic combdrive of claim 32 wherein the predetermined vertical displacement is between 0.2 and 3.0 microns.

34. The torsional electrostatic combdrive of claim 31 wherein the mirror is formed of single-crystal silicon.

35. The torsional electrostatic combdrive of claim 34 wherein the first combteeth are positioned between the second combteeth of the stationary combteeth assembly during a combdrive activation state, and the mirror intersects the plane defined by the first combteeth during the combdrive activation state.

36. The torsional electrostatic combdrive of claim 35 wherein the mirror pivots about a torsional hinge during the combdrive activation state.

37. The torsional electrostatic combdrive of claim 31 wherein the moving combteeth assembly further includes an anchor, a torsional hinge being positioned between the mirror and the anchor.

38. The torsional electrostatic combdrive of claim 31 wherein the moving combteeth assembly has a thickness of between 10 and 500 microns.

39. The torsional electrostatic combdrive of claim 38 wherein the moving combteeth assembly has a thickness of between 50 and 100 microns.

40. The torsional electrostatic combdrive of claim 31 wherein the mirror has a lateral length of less than 10 millimeters.

41. The torsional electrostatic combdrive of claim 31 wherein the mirror has a lateral length of between 550 and 2000 microns.

42. The torsional electrostatic combdrive of claim 31 wherein the moving combteeth assembly has a comb tooth gap of between 2-30 microns between two of the first individual combteeth.

43. The torsional electrostatic combdrive of claim 31 wherein the position of the moving combteeth assembly is adjusted in response to a capacitance value measured between the moving combteeth assembly and the stationary combteeth assembly.

44. The torsional electrostatic combdrive of claim 31 further comprising transparent substrates enclosing the stationary combteeth assembly and the moving combteeth assembly.

46. The torsional electrostatic combdrive of claim 31 wherein the mirror includes a multilayer optical filter.

47. The torsional electrostatic combdrive of claim 31, wherein the one or more combteeth spines define a plane that is perpendicular to and intersecting the surface of the mirror.

48. The torsional electrostatic combdrive of claim 47, wherein the second combteeth are positioned on a first side of the plane.

49. (Amended) The torsional electrostatic combdrive of claim 48, [wherein] the moving combteeth assembly further comprising:

a torsional hinge about which the mirror pivots during a combdrive activation state; and

one or more anchors coupled to the torsional hinge, wherein the one or more anchors are positioned on a second side of the plane.

50. (New) The torsional electrostatic combdrive of claim 31, wherein the combteeth spines are elongated structures and the second combteeth extend perpendicularly away from the combteeth spines.

51. (New) The torsional electrostatic combdrive of claim 31, wherein the torsional electrostatic combdrive is configured to maintain the mirror at a static position.

52. (New) A torsional electrostatic combdrive, comprising:

a stationary combteeth assembly having first combteeth; and

a moving combteeth assembly, including a mirror and a pair of combteeth spines coupled to and extending in opposite directions away from sides of the mirror, the combteeth spines each having second combteeth extending therefrom for engaging the first combteeth.

53. (New) The torsional electrostatic combdrive of claim 52, wherein the combteeth spines are elongated structures and the second combteeth extend perpendicularly away from the combteeth spines.

54. (New) The torsional electrostatic combdrive of claim 52, wherein the first combteeth extending from a first combteeth spine of the pair of combteeth spines and the second combteeth extending from a second combteeth spine of the pair of combteeth spines extend from the combteeth spines in a same direction.

55. (New) The torsional electrostatic combdrive of claim 52, wherein the torsional electrostatic combdrive is configured to maintain the mirror at a static position.

56. (New) The torsional electrostatic combdrive of claim 52 wherein the moving combteeth assembly is positioned entirely above the stationary combteeth assembly by a predetermined vertical displacement during a combdrive resting state.

57. (New) The torsional electrostatic combdrive of claim 56 wherein the predetermined vertical displacement is between 0.2 and 3.0 microns.

58. (New) The torsional electrostatic combdrive of claim 52 wherein the mirror is formed of single-crystal silicon.

59. (New) The torsional electrostatic combdrive of claim 52 wherein the first combteeth are positioned between the second combteeth of the stationary combteeth assembly during a combdrive activation state, and the mirror intersects the plane defined by the first combteeth during the combdrive activation state.

60. (New) The torsional electrostatic combdrive of claim 52 wherein the mirror pivots about a torsional hinge during the combdrive activation state.

61. (New) The torsional electrostatic combdrive of claim 52 wherein the moving combteeth assembly further includes an anchor, a torsional hinge being positioned between the mirror and the anchor.

62. (New) The torsional electrostatic combdrive of claim 52 wherein the moving combteeth assembly has a thickness of between 10 and 500 microns.

63. (New) The torsional electrostatic combdrive of claim 62 wherein the moving combteeth assembly has a thickness of between 50 and 100 microns.

64. (New) The torsional electrostatic combdrive of claim 52 wherein the mirror has a lateral length of less than 10 millimeters.

65. (New) The torsional electrostatic combdrive of claim 52 wherein the mirror has a lateral length of between 550 and 2000 microns.

66. (New) The torsional electrostatic combdrive of claim 52 wherein the moving combteeth assembly has a comb tooth gap of

between 2-30 microns between two of the first individual combteeth.

67. (New) The torsional electrostatic combdrive of claim 52 wherein the position of the moving combteeth assembly is adjusted in response to a capacitance value measured between the moving combteeth assembly and the stationary combteeth assembly.

68. (New) The torsional electrostatic combdrive of claim 52 further comprising transparent substrates enclosing the stationary combteeth assembly and the moving combteeth assembly.

69. (New) The torsional electrostatic combdrive of claim 52 wherein the mirror includes a multilayer optical filter.

70. (New) The torsional electrostatic combdrive of claim 52, wherein the one or more combteeth spines define a plane that is perpendicular to and intersecting the surface of the mirror.

71. (New) The torsional electrostatic combdrive of claim 70, wherein the second combteeth are positioned on a first side of the plane.

72. (New) The torsional electrostatic combdrive of claim 71, the moving combteeth assembly further comprising:

a torsional hinge about which the mirror pivots during a combdrive activation state; and

one or more anchors coupled to the torsional hinge, wherein the one or more anchors are positioned on a second side of the plane.